

OUTLINE

RI Addendum/Final FS Work Plan

1. Introduction
 - 1.1. Purpose
 - 1.2. Scope
 - 1.3. Regulatory guidance
 - 1.4. Organization
2. RI Addendum
 - 2.1. Additional Investigation Results to be included
 - 2.1.1. Phase 1, Phase 1D
 - 2.1.2. Area 1 and 2 additional characterization
 - 2.1.3. Groundwater monitoring
 - 2.1.4. Baseline air monitoring
 - 2.1.5. Fate and Transport sampling and evaluations
 - 2.2. Update RIM Characterization
 - 2.2.1. RIM nature
 - 2.2.2. RIM extent
 - 2.3. Update Groundwater Characterization
 - 2.3.1. Groundwater level data and potentiometric surfaces
 - 2.3.2. Groundwater quality
 - 2.4. Update Fate and Transport evaluation
 - 2.4.1. Fate and transport sampling
 - 2.4.2. Fate and transport evaluations
 - 2.5. Update Human Health Baseline Risk Assessment
 - 2.5.1. Update toxicity and radionuclide factors
 - 2.5.2. Update source term concentrations
 - 2.5.3. Update exposure point concentrations
 - 2.5.4. Update risk characterization
3. Final Feasibility Study
 - 3.1. Updates to non-remedial alternative sections
 - 3.1.1. Site conditions
 - 3.1.1.1. RIM nature and extent
 - 3.1.1.2. Air monitoring results
 - 3.1.1.3. Fate and transport evaluations
 - 3.1.1.4. SSE evaluation
 - 3.1.1.5. Tornado evaluation
 - 3.1.2. ARARs evaluations
 - 3.1.2.1. RCRA Subtitle C
 - 3.1.2.2. UMTRCA
 - 3.1.2.3. Others as identified by EPA
 - 3.1.3. Remedial Action Objectives *(need to discuss whether additional RAOs are expected by EPA or necessary in order to incorporate the additional remedial alternatives)*
 - 3.1.4. Technology Evaluations *(need to discuss expectations for this update with EPA)*
 - 3.1.4.1. Volume separation

- 3.1.4.2. Other physical and chemical treatment technologies relative to excavation alternatives
- 3.1.4.3. Geosynthetic Clay Liner (GCL) as cover material
- 3.1.4.4. Apatite or phosphate based treatment technologies
- 3.2. Revise Remedial Alternatives Development *(to reflect changes in RIM extent, source term activity and new alternatives)*
 - 3.2.1. No Action
 - 3.2.2. ROD-Selected Remedy
 - 3.2.3. Partial Excavation Alternatives
 - 3.2.3.1. 52.9 pCi/g up to 16 ft
 - 3.2.3.2. Industrial Use Risk-Based Criteria
 - 3.2.3.3. 1,000 pCi/g
 - 3.2.4. Complete Rad Removal
 - 3.2.4.1. Delete on-site disposal alternative *(need to develop language in consultation w/ EPA)*
- 3.3. Detailed Analysis of Remedial Alternatives *(only potential changes/updates are listed below)*
 - 3.3.1. No Action
 - 3.3.1.1. Update based on revised Baseline Risk Assessment results
 - 3.3.2. ROD-Selected Remedy
 - 3.3.2.1. Description relative to
 - 3.3.2.1.1. updated RIM extent
 - 3.3.2.1.2. update cover thickness calculations re:
 - ☐ gamma and radon emissions relative to revised source term
 - ☐ fate and transport evaluations of cover performance
 - 3.3.2.1.3. integration with North Quarry cover
 - 3.3.2.1.4. *Need clarification as to whether an option involving incorporation of a GCL as part of the ROD-Selected Remedy is expected*
 - 3.3.2.2. ARARs (if any new are identified)
 - 3.3.2.3. Long-term effectiveness and permanence
 - 3.3.2.3.1. Residual risk values based on updated source term numbers
 - 3.3.2.3.2. Potential impacts of an SSE
 - 3.3.2.3.3. Potential impacts from a tornado
 - 3.3.2.3.4. Potential effects of climate change
 - 3.3.2.4. Short-term effectiveness
 - 3.3.2.4.1. Community impacts re:
 - ☐ Updated construction schedule
 - ☐ Environmental justice considerations
 - 3.3.2.4.2. Worker risks re:
 - ☐ updated source term numbers
 - ☐ updated construction schedule
 - 3.3.2.4.3. Time to complete re: updated construction schedule
 - 3.3.2.5. Implementability
 - 3.3.2.5.1. Technical feasibility relative to interface of cover with North Quarry
 - 3.3.2.6. Cost estimate based on revised cover extent and schedule
 - 3.3.3. Complete Rad Removal
 - 3.3.3.1. Description relative to updated RIM extent
 - 3.3.3.2. ARARs (if any new are identified)

- 3.3.3.3. Short-term effectiveness
 - 3.3.3.3.1. Community impacts re:
 - ☐ Updated construction schedule
 - ☐ Environmental justice considerations
 - 3.3.3.3.2. Worker risks re:
 - ☐ updated source term numbers
 - ☐ updated construction schedule
 - 3.3.3.3.3. Time to complete re: updated construction schedule
- 3.3.3.4. Implementability
 - 3.3.3.4.1. Technical feasibility relative to portion of Area 1 under North Quarry
- 3.3.3.5. Cost estimate based on revised RIM extent and schedule
- 3.3.4. Partial Excavation No. 1: 52.9 pCi/g down to 16 ft with GCL layer (*new alternative so complete evaluation*)
 - 3.3.4.1. Description
 - 3.3.4.2. Overall protectiveness
 - 3.3.4.3. Compliance with ARARs
 - 3.3.4.4. Long term permanence
 - 3.3.4.5. Reduction in toxicity, mobility and volume through treatment
 - 3.3.4.6. Short-term effectiveness
 - 3.3.4.7. Implementability
 - 3.3.4.8. Cost Estimate
- 3.3.5. Partial Excavation No. 2: Industrial Risk-Based Level with GCL layer (*new alternative so complete evaluation*)
 - 3.3.5.1. Description
 - 3.3.5.2. Overall protectiveness
 - 3.3.5.3. Compliance with ARARs
 - 3.3.5.4. Long term effectiveness and permanence
 - 3.3.5.5. Reduction in toxicity, mobility and volume through treatment
 - 3.3.5.6. Short-term effectiveness
 - 3.3.5.7. Implementability
 - 3.3.5.8. Cost Estimate
- 3.3.6. Partial Excavation No. 3: 1,000 pCi/g with GCL layer (*new alternative so complete evaluation*)
 - 3.3.6.1. Description
 - 3.3.6.2. Overall protectiveness
 - 3.3.6.3. Compliance with ARARs
 - 3.3.6.4. Long term effectiveness and permanence
 - 3.3.6.5. Reduction in toxicity, mobility and volume through treatment
 - 3.3.6.6. Short-term effectiveness
 - 3.3.6.7. Implementability
 - 3.3.6.8. Cost Estimate
- 3.4. Comparative Analysis of Alternatives
 - 3.4.1. *Update based on the results of the detailed analysis of alternatives*
- 3.5. Appendices
 - 3.5.1. B – RIM identification, extent and volume
 - 3.5.1.1. Complete rad removal
 - 3.5.1.2. Partial Excavation No. 1
 - 3.5.1.3. Partial Excavation No. 2

- 3.5.1.4. Partial Excavation No. 3
 - 3.5.2. F – Cover Thickness Calculations
 - 3.5.3. G – Conceptual Environmental Monitoring (*revisions for partial excavation options if needed*)
 - 3.5.4. H – Evaluation of risks
 - 3.5.5. I – Greenhouse gas estimates
 - 3.5.6. J – Project schedules
 - 3.5.7. K – Cost estimates
 - 3.5.8. Possible Additional Appendices (appendix numbers to be revised later)
 - 3.5.8.1. SSE Evaluation
 - 3.5.8.2. Tornado Evaluation
 - 3.5.8.3. Climate Change Evaluation
 - 3.5.8.4.
 - 3.6. References
- 4. Schedule
 - 4.1. Schedule for completion of work